

## PATENT COOPERATION TREATY

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

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F/A XA1647

PCT

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing  
(day/month/year)

11.06.2004

Applicant's or agent's file reference  
XA1647

IMPORTANT NOTIFICATION

International application No.  
PCT/GB 03/00954

International filing date (day/month/year)  
06.03.2003

Priority date (day/month/year)  
11.03.2002

Applicant  
BAE SYSTEMS PLC et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international  
preliminary examining authority:



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# INTERNATIONAL PRELIMINARY EXAMINATION REPORT



(PCT Article 36 and Rule 70)

Applicant's or agent's file reference XA1647	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/GB 03/00954	International filing date (day/month/year) 06.03.2003	Priority date (day/month/year) 11.03.2002
International Patent Classification (IPC) or both national classification and IPC C06B21/00, C06B21/00		
Applicant BAE SYSTEMS PLC et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 6 sheets, including this cover sheet.
- ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand  19.09.2003	Date of completion of this report  11.06.2004
Name and mailing address of the international preliminary examining authority:   European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer  Schut, R  Telephone No. +31 70 340-3293  

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/GB 03/00954

**I. Basis of the report**

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, Pages**

1-7 as originally filed

**Claims, Numbers**

1-9 as originally filed

**Drawings, Sheets**

1/1 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).  
☐ the language of publication of the international application (under Rule 48.3(b)).  
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority in written form.  
☐ furnished subsequently to this Authority in computer readable form.  
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.  
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	4-7,9
	No: Claims	1-3,8
Inventive step (IS)	Yes: Claims	
	No: Claims	1-9
Industrial applicability (IA)	Yes: Claims	1-9
	No: Claims	

2. Citations and explanations

**see separate sheet**

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EXAMINATION REPORT - SEPARATE SHEET**

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**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

The following documents are mentioned in this international preliminary examination report:

- D1: DE 41 15 201 A (REINHARDT-TECHNIK GMBH & CO.) 9 January 1992 (1992-01-09)
- D2: US-A-4 191 480 (H. HIORTH) 4 March 1980 (1980-03-04)
- D3: US-A-5 114 630 (K.E. NEWMAN ET AL.) 19 May 1992 (1992-05-19)

**1)Clarity**

1a)Claims 8 and 9 refer to the description, which is not allowed according to Rule 6.2(a) of the PCT and paragraph III-4.10. of the PCT International Preliminary Examination Guidelines.

**2)Novelty**

2a)D1 (see D1;col.2, line 64 - col.3, line 11, figure 1 and col.1, lines 17-33) discloses an apparatus suitable for mixing explosive materials, comprising:

- i) a reservoir suitable for pre-mixed explosive material,
- ii) a reservoir for hardener material,
- iii)a static mixer means,

each of said reservoirs having separate pipe means for conveying material from each reservoir to a static mixer means.

The subject matter of claims 1 and 8 is not novel in view of D1 (Art.33(2) PCT).  
Dependent claims 2 and 3 are also anticipated by D1.

2b)The subject matter of claims 1-3 and 8 is also not novel in view of D2 (see D2;col.2, lines 3-41 and col.4, lines 45-54) as D2 discloses a static mixer connected to two vessels, which are assumed to be suitable for containing a hardener and a premixed explosive material.

2c)The subject matter of claims 4-7 and 9 in combination with the subject matter of claim 1 has not been disclosed in the cited prior art documents D1 to D3 and is therefore novel and satisfies the requirements of Article 33(2) PCT.

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3) Inventive step

Independent method claim 6

3a1) D3, which is considered to represent the closest cited prior art, discloses an automated continuous process for filling molds with a mixture of an explosive such as a nitramine and a reactive binder system such as a polyurethane. The reactive binder components are combined at the inlet of the mixer unit.

3a2) The difference between the process of D3 and claim 6 of the present application is, that a twin-screw compounder is used as mixing unit in D3 instead of a static mixer.

3a3) The technical effect related to the use of the static mixer is minimizing the negative effects as a consequence of a shut down of the system used for carrying out the process of claim 6.

Those negative effects are:

- Time necessary for cleaning the system.
- Generated amount of waste material, because of curing of the binder material.

3a4) The problem to be solved can therefore be formulated as providing a continuous process for obtaining mixtures of explosives comprising explosive material, a hardener and binder components by using a mixing unit, which minimizes the negative effects of a shut down of the system.

3a5) The solution to this problem is provided by claim 6 of the present application.

3a6) The use of a static mixer for mixing reactive binder components and other components is known in general from D1. The advantages of minimizing the effects of a shut down are disclosed by D1.

3a7) A man skilled in the art would modify as a design option the process of D3 by replacing the twin-screw compounder of D3 with the static mixer known from D1 in order to avoid problems associated with a shut down of the apparatus of D3 and would as a consequence arrive at the subject matter of process claim 6.

It is to be noted, that the advantageous use of static mixers for mixing explosives is known from D2.

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3a8)The subject matter of independent method claim 6 is considered not to be inventive in view of paragraphs 3a1 to 3a7 above (Art.33(3) PCT).

3b)The technical features of dependent claim 7 and of claim 9 are considered to be obvious in view of a combination of D1 and D3.

3c)Dependent claims 4 and 5

3c1)D3 (see D3;col.2, line 8 - col.6, line 13, col.8, lines 51-55 and example 1) discloses means for filling ordnance components with an explosive material comprising a mixture of reactive binder components and an explosive material, whereby the amounts of the explosive material and reactive binder components being introduced in the mixing unit are determined by the demand of the automated ordnance filling control means.

The technical features of dependent claim 4 are therefore considered to be obvious in view of D3 and in view of paragraph 3a8 above.

3c2)The technical feature of dependent claim 5 is considered to be an obvious design option available to the man skilled in the art.